

## **TERMS AND DEFINITIONS**

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### **-A-**

<b>ABSORBED WATER</b>	Water held mechanically in a soil mass and having physical properties not substantially different from ordinary water at the same temperature and pressure.
<b>ADMIXTURE</b>	Material other than cement, aggregate, and water in concrete used to entrain air, retard setting, or accelerate setting.
<b>ADSORBED WATER</b>	Extremely thin films of water that adhere to particle surfaces due to molecular forces.
<b>AGGREGATE</b>	Sand, gravel, crushed stone, slag, cinders, or other material of mineral composition, which may be bound together into a conglomerated mass by a matrix to form mortar, concrete, plaster, etc.
<b>ALTERNATIVES</b>	Different courses of action or systems that will satisfy objectives and goals.
<b>ANALYSIS PERIOD</b>	The time period used for comparing design alternatives. An analysis period may contain several maintenance and rehabilitation activities during the life cycle of the pavement being evaluated. It is sometimes referred to as the economic life, that period over which an investment is considered for satisfying a particular need. The length of time for the analysis period would be established by the agency.

<b>ANGLE OF INTERNAL FRICTION</b>	The angle whose tangent is the ratio between the resistance offered to sliding along any plane in the soil and the component of the applied force acting normal to that plane.
<b>ANNUALIZED METHOD</b>	Economic method that requires conversion of all present and future expenditures to a uniform annual cost.
<b>ANTI-STRIPPING AGENT</b>	Chemicals added to bitumen to improve the adhesion of the bitumen to hydrophilic aggregates.
<b>ASPHALT</b>	A dark brown to black, cementitious material; solid, semi-solid, or liquid in consistency; in which the predominating constituents are bitumens which occur in nature as such, or which are obtained in the refining of petroleum.
<b>AUGER</b>	A drill for test holes in unconsolidated material modeled after the conventional carpenter's screw auger.
<b>AXLE LOAD</b>	The total load transmitted by all wheels whose centers may be included between two parallel transverse vertical planes 3 feet 3 inches apart, extending across the full width of the vehicle.
<b>-B-</b>	
<b>BASE COURSE</b>	The layer of specified or selected material of designed thickness placed on a subbase or a subgrade to support a surface course.
<b>BENEFIT/COST ANALYSIS</b>	Technique intended to relate the economic benefits of a solution to the costs incurred in providing the solution.
<b>BERM</b>	A shelf that breaks up the continuity of a slope.
<b>BITUMEN</b>	See asphalt.
<b>BLEEDING OF ASPHALT</b>	Upward migration of bituminous material, characterized by the presence of an excessive amount of asphalt on the surface.

<b>BLEEDING OF CONCRETE</b>	The escape of water from freshly-placed concrete, commonly observed as an accumulation upon the surface.
<b>BORROW</b>	Construction material that must be hauled in from outside the roadway limits for the construction of the roadbed embankments, subgrade, shoulders, etc.
<b>BOULDERS</b>	Rounded rock fragments larger than 3 inches in size.
<b>BRAINSTORMING</b>	A widely used creativity technique for generating a large quantity and wide variety of ideas for alternative ways of solving a problem or making a decision. All judgment and evaluation are suspended during the free-wheeling generation of ideas.
<b>BROKEN ROCK</b>	Angular fragments of rock larger than 3 inches in size.
<b>-C-</b>	
<b>CAPILLARY WATER</b>	Water held in a soil by the capillaries in the soil. It is free water, but it can be removed from the soil only after the water table is lowered or when evaporation takes place at a faster rate than the rate of capillary flow.
<b>CASH-FLOW DIAGRAM</b>	Schematic diagram of dollar costs and benefits with respect to time.
<b>CELSIUS SCALE</b>	A means of measuring temperature in the metric system. The fixed points are the freezing and boiling points of water (0 EC and 100 EC respectively) at an atmospheric pressure of 760 mm.
<b>CHEMICAL CHANGE</b>	Any change which results in the formation of a new substance.
<b>CLAY</b>	Material passing a No. 200 sieve having a plasticity index of 11 or greater.
<b>COHESION</b>	The mutual attraction of particles due to molecular forces and the presence of moisture films.

<b>COHESIONLESS SOIL</b>	A soil that when unconfined has little or no strength when air-dried and that has little or no cohesion when submerged.
<b>COHESIVE SOIL</b>	A soil that when unconfined has considerable strength when air-dried and that has significant cohesion when submerged.
<b>COMPACTION</b>	The practice of artificially densifying or increasing the unit weight of a material by rolling, tamping, vibrating, or other means.
<b>CONSISTENCY OF CONCRETE</b>	The relative mobility of fresh-mixed concrete or mortar, commonly measured by its slump.
<b>CONSISTENCY OF SOIL</b>	The relative ease with which a soil can be deformed.
<b>CONSOLIDATION</b>	The decrease in thickness of a soil stratum due to an increase in load.
<b>CONSTANT DOLLARS</b>	Dollars that have not been adjusted for the effects of expected future inflation or deflation; sometimes referred to as dollars as of a specific date (for example, "1980 dollars").
<b>CONSTRUCTION JOINT</b>	A joint made necessary by a prolonged interruption in the placing of concrete or asphalt.
<b>CONTRACTION JOINT</b>	A joint at the ends of a rigid slab to control the location of transverse cracks
<b>CORRECTIVE MAINTENANCE</b>	Type of maintenance used to take care of day-to-day emergencies and repair deficiencies as they develop. May include both temporary and permanent repairs; sometimes referred to as remedial maintenance.
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<b>CRACK</b>	A fissure or open seam not necessarily extending through the body of a material.
<b>CREEP</b>	Slow movement of soil usually imperceptible except to observations of long duration.

<b>CURING</b>	The preparation of a material by chemical or physical processing for keeping or use.
<b>CURRENT DOLLARS</b>	An expression of costs stated at price levels prevailing at the time costs are incurred. Current dollars are inflated and represent price levels that may exist at some future date when the costs are incurred.
<b>-D-</b>	
<b>DEFLOCCULATING AGENT</b>	A chemical that destroys or prevents the formation of flocs.
<b>DEFORMED BAR</b>	A reinforcing bar conforming to "Minimum Requirements for the Deformations of Deformed Steel Bars for Concrete Reinforcements," AASHTO Designation M-137.
<b>DEGREE OF SATURATION</b>	The ratio of the volume of water to the volume of voids. It is usually expressed as a percentage.
<b>DENIAL-OF-USE COSTS</b>	Extra costs occurring during the life cycle because occupancy or income (production) is delayed as a result of a process decision.
<b>DENSE-GRADED AGGREGATE</b>	A mineral aggregate uniformly graded from the maximum size down to and including sufficient mineral dust to reduce the void space to a minimum.
<b>DENSITY</b>	The weight of a substance per unit volume such as pounds per cubic foot (lb/ft <sup>3</sup> or pcf ).
<b>DEPRECIATION</b>	The allocation of the cost of a fixed asset over the estimated years of productive use. It is a process of allocation, not valuation. (Straight line; Declining balance; Sum of years—digits).

<b>DESIGN LIFE</b>	The length of time (in years) for which a pavement facility is being designed, including programmed rehabilitation. At the end of this period, the physical life of the facility is considered to be ended, i.e., the pavement structure has deteriorated to a point where total reconstruction would be necessary.
<b>DIP</b>	The dip of a stratum is the angle between a bedding plane and the horizontal, measured in a plane at right angles to the strike.
<b>DISCOUNT RATE</b>	A value in percent used as the means for comparing the alternative used for funds by reducing the future expected costs or benefits to present day terms. Discount rates are used to reduce various costs or benefits to their present worth or to uniform annual costs so that the economics of the different alternatives can be compared.
<b>DISINTEGRATION</b>	Deterioration into small fragments from any cause.
<b>DISTORTION</b>	Any deviation of a surface from its original condition.
<b>DOWEL</b>	A load-transfer device usually consisting of a plain, round, steel bar.
<b>-E-</b>	
<b>ELASTICITY</b>	The property of a material which enables it to rebound after compaction or after removal of a load.
<b>EMBANKMENT OR FILL</b>	A raised structure of soil, soil-aggregate, or rock.
<b>EMULSIFIED ASPHALT</b>	An emulsion of asphalt cement and water which contains a small amount of an emulsifying agent. Water forms the continuous phase of the emulsion, and minute globules of asphalt form the discontinuous phase.
<b>ENGINEERING ECONOMICS</b>	Technique that allows the assessment of proposed engineering alternatives on the basis of considering their economic consequences over time.

<b>EQUIVALENT DOLLARS</b>	Dollars, both present and future, expressed in a common baseline reflecting the time value of money and inflation.
<b>EQUIVALENCE FACTOR</b>	A numerical factor that expresses the relationship of a given axle load to another axle load in terms of their effect on the serviceability of a pavement structure.
<b>EROSION</b>	The loosening and transporting of rock debris and soil by moving agents operation on the earth's surface. The four main moving agents include the wind, waves and currents in the ocean or other bodies of water, glaciers, and running water.
<b>ESCALATION (DIFFERENTIAL) RATE</b>	That rate of inflation above the general devaluation of the purchasing power of the dollar.
<b>EXPANSION JOINT</b>	A joint located to provide for expansion of a rigid slab without damage to itself, adjacent slabs or structures.
<b>-F-</b>	
<b>FAHRENHEIT SCALE</b>	A means of measuring temperature. The fixed points are the freezing and boiling points of water (32 degrees Fahrenheit and 212 degrees Fahrenheit) at an atmospheric pressure of 14.7 lb/ in <sup>2</sup> .
<b>FAILURE</b>	Unsatisfactory performance of a pavement or portion such that it can no longer serve its intended purpose.
<b>FAULTING</b>	Differential vertical displacement of material adjacent to a joint or crack.
<b>FINENESS MODULUS</b>	An index to the fineness or coarseness of an aggregate. It is the summation of the cumulative percentages of the material retained on the standard sieves divided by 100. It is not an indication of grading.

<b>FLEXIBLE PAVEMENT</b>	A pavement structure which maintains intimate contact with and distributes loads to the subgrade and depends upon aggregate interlock, particle friction, and cohesion for stability.
<b>FLOC</b>	A loose, open-structured mass formed in a suspension by the aggregation of minute particles.
<b>FOG COAT</b>	A very light application of asphalt without aggregate cover.
<b>FOUNDATION SOIL</b>	The earth mass that carries the load of a structure or embankment.
<b>FREE WATER</b>	Both gravitational and capillary water.
<b>FRIABLE</b>	Easy to break or crumble.
<b>FROST HEAVE</b>	The raising of a surface due to the accumulation of ice in the underlying soil.
<b>-G-</b>	
<b>GEOLOGIC MAP</b>	A map that shows the distribution of the different rock masses that underlie the ground surface plotted accurately to scale in relation to the topographic features and other control points on the map.
<b>GILSONITE</b>	A solid variety of asphalt that occurs in nature in the Uintah Basin, Utah.
<b>GRADATION</b>	A term used to describe the range and the relative distribution of aggregate particle sizes. Comparison is based on dry weight.
<b>GRAM</b>	The basic unit of weight in the metric system which is the weight of one cubic centimeter of distilled water at 4 EC.
<b>GRAVEL</b>	Rounded particles of rock which will pass a 3 inch sieve and be retained on a No. 10 sieve.



**GRAVITATIONAL  
WATER**

Water free to move downward under the force of gravity. It is the water that will drain from a soil.

**GROUND WATER**

Water that saturates the pores and cracks in the soil and rock beneath the land surface.

**-H-****HEAVE**

Upward movement of soil caused by expansion or displacement resulting from phenomena such as moisture absorption, removal of overburden, driving of piles, frost action etc.

**HOMOGENEOUS  
MASS**

A mass that exhibits essentially the same physical properties at every point throughout the mass.

**HONEYCOMB**

A surface of interior defect in a concrete mass characterized by the lack of mortar between the coarse aggregate particles.

**HUMMOCKY**

Lumpy, or in small uneven knolls.

**HYDROPHILIC  
AGGREGATE**

An aggregate which exhibits a greater affinity for water than for bitumen.

**HYDROPHOBIC  
AGGREGATE**

An aggregate which exhibits a greater affinity for bitumen than for water.

**HYDROSTATIC  
PRESSURE**

The pressure in a liquid under static conditions; the product of the unit weight of the liquid and the difference in elevation between the given point and the free water elevation.

**HYGROSCOPIC  
MOISTURE**

Water retained by soil after gravitational and capillary moisture are removed. It is held by each soil grain in the form of a very thin film and has both a physical and chemical affinity for the soil grain. It is also spoken of as the air-dry moisture content. This film is in equilibrium with the moisture content of the air and increases or decreases as the humidity of the air increases or decreases. The hygroscopic moisture content of a soil also varies with the grain size. As the grain size increases, the hygroscopic moisture content increases.

**-I-**

<b>IGNEOUS ROCK</b>	Rock formed by the cooling and consolidation of complex mineral solutions (magmas) which have risen from the earth's interior.
<b>INFLATION</b>	A continuing rise in the general price levels, caused usually by an increase in the volume of money and credit relative to available goods.
<b>INITIAL COSTS</b>	Costs associated with initial development of a facility, including project costs (fees, real estate, site, etc.) as well as construction cost.
<b>INTEREST</b>	A ratio of the amount paid for using resources for a given period of time to the total investment. A term generally associated with borrowing money and is often referred to as market interest rates. The market interest rate includes both an allowance for expected inflation as well as a return that represents the real cost of capital.
<b>INTERNAL FRICTION</b>	The resistance to sliding within a soil mass due to particle interlock and particle friction.

**-L-**

<b>LEACHING</b>	The removal of soluble salts or other soluble materials by percolating water.
<b>LEVELING COURSE</b>	A course of variable thickness used to eliminate irregularities in contour of an existing surface prior to superimposed treatment or construction.
<b>LIFE CYCLE COSTING</b>	An economic assessment of an item, area, system, or facility and competing design alternatives considering all costs of ownership over the economic life, expressed in terms of equivalent dollars.
<b>LINEAL SHRINKAGE</b>	The decrease in one dimension of a soil mass when the water content is reduced from a given percentage to the shrinkage limit.

<b>LIQUID LIMIT</b>	That moisture content which is the boundary between the liquid and plastic states for the minus No. 40 fraction of a soil.
<b>LITER</b>	The common unit of volume in the metric system which is equal to the volume occupied by one kilogram of distilled water at 4E C.
<b>LOAD-TRANSFER DEVICE</b>	A mechanical means designed to carry loads across a joint.
<b>LONGITUDINAL JOINT</b>	A full-depth of weakened-plane type joint placed between traffic lanes to control longitudinal cracking.
<b>-M-</b>	
<b>MAINTENANCE</b>	Anything done to pavement after original construction until complete reconstruction, excluding shoulders and bridges. It includes pavement rehabilitation and restoration.
<b>MATERIALS OPTION</b>	A legal and binding contract for the procurement of road-building material within a specified length of time.
<b>MAXIMUM DENSITY</b>	The oven-dry weight per cubic foot of a soil compacted at the optimum moisture content under a given compactive effort.
<b>MAXIMUM SIZE</b>	One sieve size larger than the nominal maximum size.
<b>METAMORPHIC ROCK</b>	Rock of any origin visibly changed by high temperatures or pressures, or by fluids acting under these conditions.
<b>MINIMUM ATTRACTIVE RATE OF RETURN</b>	Reflects the cost of using resources and the risk that the project may fail to produce the expected results. The risk portion of the minimum attractive rate of return varies with different cost centers and even with projects within cost centers.

**MOISTURE CONTENT** The ratio of weight of water to weight of solid matter, commonly expressed as a percentage.

**-N-**

**NOMINAL MAXIMUM SIZE** One sieve size larger than the largest sieve size to retain more than 10 percent.

**NON-RECURRING COST** Cost that occurs, or is expected to occur, only once.

**-O-**

**OPEN-GRADED AGGREGATE** An aggregate containing little or no fines or in which the void spaces, after compaction of the aggregate, are relatively large.

**OPPORTUNITY RATE** That rate of return that the organization could make by investing its resources in the most beneficial (profitable) projects to the limit of the resources available.

**OPTIMUM MOISTURE CONTENT** That moisture content of a soil that will result in the maximum dry unit weight for a given compactive effort.

**-P-**

**PAVEMENT CONDITION** The present status or performance of a pavement.

**PAVEMENT MANAGEMENT SYSTEM** A set of tools or methods that assist decision makers in finding optimum strategies for providing and maintaining pavements in a serviceable condition over a given period of time.

**PAVEMENT STRUCTURE** The combination of subbase, base, and surface courses placed on a subgrade to support the traffic load and distribute it to the roadbed.

<b>PERFORMANCE OF PAVEMENT</b>	The trend of serviceability with load applications.
<b>PERMEABILITY</b>	The property of a material allowing it to transmit water.
<b>PIEZOMETER</b>	An instrument for measuring water pressure.
<b>PITTING</b>	The displacement of aggregate particles from a surface due to traffic or weathering.
<b>PLASTICITY</b>	A property of a material which permits it to be remolded without crumbling under certain moisture conditions. A soil or a soil fraction is called plastic, if, within some range of moisture content, it can be rolled into thin threads.
<b>PLASTICITY INDEX</b>	The plasticity index of a soil is the numerical difference between its liquid limit and its plastic limit.
<b>PLASTIC LIMIT</b>	That moisture content which is the boundary between the plastic and semi-solid states for the minus No. 40 fraction of a soil.
<b>PORE-WATER PRESSURE</b>	Stress transmitted through the pore water of a soil (water filling the voids of the soil).
<b>POROSITY</b>	The ratio of the volume of void space (pores) of a material to the total volume of its mass, usually expressed as a percent.
<b>PRESENT WORTH METHOD</b>	Economic method that requires conversion of all present and future expenditures to a baseline of today's cost.
<b>PREVENTIVE MAINTENANCE</b>	The type of maintenance intended to keep the pavement above some minimum acceptable level at all times. It is used as a means of preventing further pavement deterioration that would require corrective maintenance. It may include either structural or nonstructural improvements to a pavement surface.
<b>PRIME COAT</b>	An application of a liquid asphalt to a surface.

<b>PUMPING</b>	The ejection of foundation soil, either wet or dry, through joints or cracks, or along edges of rigid slabs, due to vertical movements under traffic.
<b>-R-</b>	
<b>RATE OF RETURN</b>	The interest rate that, over a period of time, equates the benefits derived from an opportunity to the investment cost of the project.
<b>RAVELING</b>	Progressive disintegration of a pavement surface by dislodgment of aggregate particles.
<b>RECURRING COSTS</b>	Costs that recur on a periodic basis throughout the life of the project.
<b>REGIONAL FACTOR</b>	A numerical factor that is used to adjust the structural number for climatic and environmental conditions.
<b>REHABILITATION</b>	The act of restoring the pavement to a former condition so it can fulfill its function.
<b>REINFORCEMENT</b>	Steel embedded in a rigid slab to resist tensile stresses and detrimental opening of cracks.
<b>REPLACEMENT COSTS</b>	Those one-time costs to be incurred in the future to maintain the original function of the facility or item.
<b>RIGID PAVEMENT</b>	A pavement structure which distributes loads to the subgrade, consisting of a portland cement concrete slab of relatively high bending resistance, underlain by a subbase.
<b>RIPRAP</b>	Broken rock used for the protection of embankments, cut slopes, structures, etc, against agents of erosion, primarily water.
<b>RISK</b>	Exists when each alternative will lead to one of a set of possible outcomes and there is a known probability of each outcome.

<b>ROADBED</b>	The graded portion of a highway between top and side slopes, prepared as a foundation for the pavement structure and shoulders.
<b>ROADBED MATERIAL</b>	The material below the subgrade in cuts and embankments, and in embankment foundations extending to such depth as affects the support of the pavement structure.
<b>ROAD MIX</b>	A mixture of aggregate and asphalt mixed in place.
<b>RUTTING</b>	The formation of longitudinal depressions by the lateral displacement of soils or surfaces under traffic.
	-S-
<b>SALVAGE VALUE</b>	The value (positive if it has residual economic value and negative if requiring demolition) of competing alternatives at the end of the life cycle or the analysis period. Sometimes referred to as residual value.
<b>SAND</b>	Granular material resulting from the disintegration, grinding, or crushing of rock and which will pass the No. 10 sieve and be retained on the No. 200 sieve.
<b>SATURATION CURVE (ZERO AIR VOIDS CURVE)</b>	The curve showing the zero air voids unit weight as a function of water content.
<b>SCREEDING</b>	The process of striking off excess material to bring the top surface to proper contour and elevation.
<b>SEAL COAT</b>	A thin asphaltic surface treatment used to improve the texture of and waterproof an asphalt surface.
<b>SEDIMENTARY ROCK</b>	Rock formed from the products of disintegration and decomposition of any rock which has been transported, redeposited, and partly or fully consolidated or cemented into a new rock type. Also included are

	those rocks which result from chemical precipitation or decomposition of organic remains in water.
<b>SEGREGATION</b>	Separation of coarse aggregate particles from the fine resulting in an uneven distribution of different sizes.
<b>SELECTED MATERIAL</b>	Suitable native material obtained from roadway cuts or borrow areas, or other similar material used for subbase, roadbed material, shoulder surfacing, slope cover, etc.
<b>SENSITIVITY</b>	The effect of remolding on the consistency of a cohesive soil.
<b>SENSITIVITY ANALYSIS</b>	A technique to assess the relative effect a change in input variable(s) has (have) on the resulting output.
<b>SERVICEABILITY</b>	The ability at time of observation of a pavement to serve high-speed, high-volume automobile and truck traffic.
<b>SERVICEABILITY INDEX</b>	A number derived by formula for estimating the serviceability rating from measurements of certain physical features of the pavement.
<b>SERVICEABILITY RATING</b>	The mean value of the independent subjective ratings by members of a special panel for the AASHTO Road Test as to the serviceability of a section of highway.
<b>SETTLEMENT</b>	The reduction in elevation of short sections of pavement or structures due to compressibility of underlying soils.
<b>SHEAR STRENGTH</b>	The maximum resistance of a soil to shearing stresses.
<b>SHOULDER</b>	That portion of the roadbed between the travel lanes and the top of the ditch in cuts and the top of the slope in embankments.
<b>SHOVING</b>	Longitudinal displacement of soils or surfaces due to traffic loads.
<b>SHRINKAGE LIMIT</b>	The maximum calculated water content at which a reduction in water content will not cause a decrease in the volume of the soil mass.



<b>SHRINKAGE RATIO</b>	The ratio between a given volume change and the corresponding change in water content above the shrinkage limit.
<b>SILT</b>	Material passing a No. 200 sieve having a plasticity index of 10 or smaller.
<b>SLAB LENGTH</b>	The distance between transverse contraction joints in rigid pavement.
<b>SLAKING</b>	The process of breaking up or sloughing.
<b>SLUMP</b>	A measure of consistency of concrete.
<b>SOIL</b>	Sediments of other unconsolidated accumulations of solid particles produced by the physical and chemical disintegration of rock, and which may or may not contain organic matter. Thus soil may vary from clay to glacial boulders.
<b>SOIL PROFILE</b>	A vertical cross-section of soil layers.
<b>SOIL STRUCTURE</b>	The arrangement and state of aggregation of soil particles in a soil mass.
<b>SOIL SUPPORT VALUE</b>	An index number which expresses the relative ability of a soil or aggregate mixture to support traffic loads through the pavement structure.
<b>SOIL TEXTURE</b>	The relative proportion of the various particle-size groups of small; individual grains contained; in a soil the coarseness or fineness of the soil.
<b>SOUNDNESS</b>	Resistance to both physical and chemical weathering.
<b>SPALLING</b>	Peeling away of a surface, particularly portland cement concrete.
<b>SPECIFIC GRAVITY (ABSOLUTE)</b>	The ratio of the weight of a given volume of solids to the weight of an equal volume of distilled water at a stated temperature (generally 68 EF).

<b>SPECIFIC GRAVITY (APPARENT)</b>	The ratio of the weight of a given volume of impermeable material (that is, the solid matter including impermeable pores) to the weight of an equal volume of distilled water at a stated temperature.
<b>SPECIFIC GRAVITY (BULK)</b>	The ratio of the weight of a given volume of permeable material (including both permeable and impermeable voids) to the weight of an equal volume of water at a stated temperature.
<b>STRATIFIED</b>	Formed, deposited, or arranged in strata or layers.
<b>STRATUM</b>	A layer of rock or soil more or less similar throughout.
<b>STRIKE</b>	The trace of the dipping plane of stratum, fault, or vein on the horizontal. The strike is at right angles to the direction of dip.
<b>STRIPPING</b>	Separation of bituminous films from aggregate particles due to the presence of moisture.
<b>STRUCTURAL NUMBER</b>	An index number derived from an analysis of traffic and roadbed soil conditions, which may be converted to pavement thickness through the use of suitable factors related to the type of material being used in the pavement structure.
<b>SUBBASE</b>	The layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course.
<b>SUBGRADE</b>	The top surface of a roadbed upon which the pavement structure and shoulders are constructed.
<b>SUBGRADE REACTION (k)</b>	Westergaard's modulus of subgrade reaction: The load on a loaded area of the subgrade or subbase divided by the deflection of the subgrade or subbase.
<b>SURCHARGE</b>	Additional fill material placed on a fill already built to grade. The additional fill material accelerates the rate of consolidation of compressible foundation soils.

<b>SURFACE COURSE</b>	One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. This top layer is sometimes referred to as the wearing course.
<b>SURFACE TEXTURE</b>	Surface texture refers to the degree of polish of a surface. It also refers to the markings of a surface, such as pits and striations, regardless whether this surface shows a high degree of polish otherwise.
<b>-T-</b>	
<b>TACK COAT</b>	A very light application of liquid asphalt, or an asphalt emulsion diluted with water.
<b>TAR</b>	A bituminous condensate produced by the destructive distillation of petroleum, coal, or wood.
<b>TIME VALUE OF MONEY</b>	Recognition that all organizations have limited resources (finances, people, facilities, equipment) and that the commitment of these to a project precludes their use for any other investment. Whether internal resources are used, or borrowed, the interest that these resources could produce is a cost to the project.
<b>TRADE-OFFS</b>	Giving up one thing to obtain something else.
<b>TRANSVERSE JOINT</b>	A joint running across the pavement.
<b>-U-</b>	
<b>UNCERTAINTY</b>	Exists when the probabilities of the outcomes are completely or partially unknown.
<b>UNCONFINED COMPRESSIVE STRENGTH</b>	The load per unit area at which an unconfined cylindrical specimen will fail in simple compression.

**UNDISTURBED  
SAMPLE**

A soil sample that has been obtained by methods which minimize disturbance of the sample.

**UNIFORMLY  
GRADED  
AGGREGATE**

An aggregate in which all the particles are approximately the same size.

**USEFUL LIFE**

The period of time over which a building element may be expected to give service. It may represent physical, technological, or economic life.

**USER COSTS**

Those costs that are accumulated by the user of a facility. In a life cycle cost analysis these could be in the form of delay costs or change in vehicle operating costs.

**-V-****VALUE  
ENGINEERING  
(VE)**

An analysis of materials, processes, and products where functions are related to cost and from which a selection may be made for the purpose of achieving the required function at the lowest overall cost consistent with the requirements for performance, reliability, and maintainability; sometimes called value analysis.

**VOID**

The space in a soil mass or other material not occupied by solid mineral matter.

**VOID RATIO**

The ratio of the volume of voids to the volume of solid particles.

**VOIDS IN THE  
MINERAL  
AGGREGATE  
(VMA)**

Air-void spaces that exist between the aggregate particles in a compacted paving mixture including spaces filled with asphalt.

**VOLUMETRIC  
CHANGE**

The decrease in volume of the soil mass when the water content is reduced from a given percentage to the shrinkage limit.

**-W-**

**WATER HOLDING  
CAPACITY**

The smallest value to which the water content of a soil can be reduced by gravity drainage.

**WATER TABLE**

The upper surface of a zone beneath the land surface where all the pores in the soil or rock are completely filled with water.

**WEARING  
COURSE**

The top portion of a surface course that takes direct wear from traffic.

**-Y-**

**YIELD OF  
CONCRETE**

The volume of concrete produced per sack of cement.